

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Amendment of the Commission's Rules)	PR Docket No. 92-257
Concerning Maritime Communications)	
)	
Petition for Rule Making filed by)	RM-9664
Regionet Wireless License, LLC)	

Petition for Reconsideration

Warren C. Havens ("Havens") holds, or via Telesaurus Holdings GB, LLC ("Telesaurus") (in which Havens holds majority controlling interest) (together, "LMS Wireless," their DBA ["LMSW"]), holds: (i) Automated Marine Telecommunication Service ("AMTS") licenses in various States, (ii) licenses in the 220 MHz service ("2220 MHz") in many States, (iii) interests in Net Radio Group Communications, LLC which holds a large number of 220 MHz licenses, (iv) most of the LMS Multilateration ("LMS-M") 'A'-block licenses in the nation, and (v) the VHF Public Coast ("VPC") licenses in many states.

LMSW hereby petitions for reconsideration of certain decisions made in the Second Memorandum Opinion and Order and Fifth Report and Order in the above-captioned proceeding released April 8, 2002 (the "2nd MO&O and 5th R&O").

Unlicensed AMTS Spectrum Should Not Be Auctioned
But Set-aside for Public Safety and Critical Infrastructure

In the 5th R&O, the major Commission decision was, in brief:

21. In this *Fifth Report and Order*, we adopt rules that will streamline our licensing process for AMTS stations by utilizing a geographic licensing system. We will conduct an auction to resolve mutually exclusive applications for AMTS licenses. We conclude that our general competitive bidding [auction] rules, and the rules regarding the participation of small businesses in auctions that were applied to the auction of VPC licenses, should be used for auctioning AMTS licenses. [Item in bracket added.]

In light of the great need for more spectrum nationwide for public safety (“PS”) and critical infrastructure (CI”) entities,¹ mostly spectrum suitable for cost-effective wide-area mobile communications, and especially in light of the events of September 11, 2001² which have emphasized the magnitude and urgency of these needs, the Commission should reconsider this decision to auction AMST spectrum that has not yet been licensed (rather, that which was properly licensed under the rules and kept valid under the rules)³ (the

¹ Herein “Public Safety” (“PS”) means traditional public safety as described in Section 337(f) of the Communications Act (the “Act”), and “Critical Infrastructure” (“CI”) means entities described in Section 309(j)(2) of the Act.

² This is after the 11-16-00 release date of the *Fourth Report and Order and Third Further Notice of Proposed Rule Making* in the above-captioned docket (in which the Commission described its intention to proceed to auction Unlicensed AMTS [defined above] along with some proposed rule for that purpose), on which the 2nd MO&O and 5th R&O was based. Accordingly, after 9-11-02, this is the first opportunity (a petition for reconsideration of the 5th R&O) LMSW has had to formally raise this AMTS spectrum set-aside proposal with respect to the “9-11” events which have made exceptionally clear the proposal’s principal rationale: the above-noted needs of PS and CI.

³ Havens is on record before the Commission, including in four pending Applications for Review involving AMTS licensing matters, regarding the invalidity under the rules of many AMTS licenses that, to this day, remain in FCC licensing databases. These filings present clear facts that are in the files of the subject licenses regarding such licenses failure to comply with requirements for initial application, requirements for construction coverage and deadlines, requirements to operate under licensing parameters without major modification not applied for and granted, and other defects including, for one license involving the Mississippi River, clear failure to meet the conditions under which a second AMTS block was granted.

“Unlicensed AMTS Spectrum”). Instead, the Commission should make all of the Unlicensed AMTS Spectrum a set-aside for exclusive use by PS and CI under terms as presented in the Attachment hereto, or such other terms as the Commission finds most appropriate (the “AMTS PS-CI Spectrum”).

The Attachment hereto presents a rationale for this proposal, including a discussion of these needs of PS and CI, and suggests a means of implementation of this proposal via a multi-band service focused on PS and CI. This Attachment is an outline by LMSW of a proposed multi-band “Advanced Technology Land Infrastructure and Safety Service” (“ATLIS”), which includes the Unlicensed AMTS Spectrum. The final proposal, in the form of a white paper, will soon submit to the FCC Spectrum Task Force and well as in filings (on an Ex Parte or other basis) in dockets regarding the spectrum proposed for inclusion in ATLIS, including the Unlicensed AMTS Spectrum (in the above-captioned docket), 902-928 MHz, 4.9 GHz, 5.9 GHz, 217-218 MHz, 220-222 MHz, and 222-225 MHz. The attached ATLIS summary, and the final ATLIS white paper, will also be sent to parties who have interests in the subject matters, including NTIA, UTC and other CI entities, APCO and other PS, ITS America, Congress persons involved in PS, CI, and ITS matters, and others.

Whether or not the Commission accepts this ATLIS proposal in full or part with regard to other spectrum than the AMTS Unlicensed Spectrum, it should nevertheless proceed to create as soon as possible the proposed set-aside of AMTS Unlicensed Spectrum for PS and CI for the fundamental reasons given in the Attachment, including the described and documented PS and CI needs. As indicated above, LMSW will be seeking feedback from PS and CI entities on this proposed AMTS PS-CI Spectrum set-aside, as

well as on the larger, multi-band ATLIS proposal, and expects such feedback to include filings in the above-captioned docket.

As part of the process of establishing the AMTS PS-CI Spectrum set-aside, the Commission should undertake a careful review of all AMTS licensing and alleged operations to date and revoke or rescind all licenses for which the licensing rule requirements were not fully satisfied (see footnote __ above).

As noted above, there is a compelling rationale for the proposed AMTS PS-CI Spectrum set-aside. On the other hand, there is clearly no compelling reason to auction the Unlicensed AMTS Spectrum. AMTS was established to provide for certain “integrated and interconnected” services (e.g., see 5th R&O, ¶ 22). This “integrated” aspect set it aside from the VHF Public Coast marine service, since it related to the requirement in §80.475(a) for continuity of service coverage among two or more stations on an AMTS system (VPC may involve only single stations, or stations that do not have overlapping continuity of service coverage). However, while the initial intent was to serve marine traffic by such unique “integrated” multi-site means, (i) the Commission has since permitted land mobile service with no limitation on the quantity of land mobile traffic vs. marine traffic served, and (ii) in the 5th R&O, the Commission replaced the old paragraph §80.475(a) with a new paragraph §80.475(a) which eliminated the coverage requirement that was the basis of the unique “integrated” aspect. Further, (iii), there is clear evidence from a review of the AMTS licensing files of stations that have thus far been reported as placed into operation, as well as from a review of the industry trade press regarding such licenses and the services their licensees report that they are providing on these licenses, that there is little if any service

being provided to marine traffic.⁴ Even the placement of the licenses, chosen by these licensees, clearly shows their intent from the start to provide land mobile service to major population centers, not to provide marine service to the subject long coastlines or waterways.⁵

It is thus clear that there is no needed or even substantial marine service that has been or is being provided by AMTS licenses, and the Commission has already eliminated the “integrated” multi-site continuity-of-coverage requirement that was the basis of AMTS marine service, and has allowed land mobile service with no limitation. Further, as suggested above, if a proper review of licenses issued to date is undertaken (even a cursory one for most licenses: application coverage maps, dates and details of construction notification

⁴ As the Commission knows, the principal initial licensee in AMTS was Waterway Communications (“Watercom”). The Bureau maintained a policy to grant only one AMTS spectrum block in a license, unless a special need showing was made and accepted. Watercom obtained both AMTS spectrum blocks (2 MHz in total) based on a special need showing which the Commission accepted as demonstrating a need for this large quantity of spectrum, to be used along the Mississippi River system for commercial shipping (mostly barge traffic). However, per filings in Commission records on this license, SEC filings by the parent company of Watercom, as well as trade-press articles, Watercom only achieved approximately 1,000 radios in use over its entire Mississippi and Gulf Coast system, which would not begun to need even 1 MHz (1 block), certainly not 2 MHz. Thus, the basis for the special grant of both blocks proved defective (even if initially sufficient and sincere, which is questionable by a review of the filing and by the fact that Watercom never reported the clear lack of the asserted need in actual operations) and thus grant of that block should be rescinded. (The Commission has in other cases rescinded relief granted based on asserted need or cause, when such assertion proves invalid. To not do so would invite and reward baseless and insincere claims and unfairly enrich the perpetrators at the expense of fair-practice competitors.) Further, Watercom failed and sold its AMTS licenses and system several years ago—further proof that the AMTS service was not, even along this major US commercial shipping route, a needed and viable service. Further, after buying the Watercom AMTS licenses and stations, Mobex reported in the trade press that it intended to fill-in the gaps in coverage and provide land mobile service. This only suggests a further defect in the Watercom license: failure to comply with the required continuity of coverage per the old (pre 5th R&O) §80.475(a).

⁵ Indeed, the placement of these stations without manifestly failed to provide the continuity of coverage required under the old §80.475(a), and thus provided no basis for initial grants or license renewals.

letters, etc.), and pursuant thereto, licenses are terminated that have not complied with rule requirements, then the Commission will find that there is little AMTS spectrum that is licensed.

If, contrary to our arguments above and asserted underlying facts, the Commission finds there are substantial unique services provided by existing valid AMTS licenses, still, the above proposal should be seriously considered, and implemented fully or at least partially due to the importance of the PS and CI needs that it would serve.

In terms of the need for further AMTS licensing for land mobile service, there is no compelling case, certainly not as compelling as the case for the proposed AMTS PS-CI Spectrum set aside. For example, the Commission has licensed by auction 220-222 MHz for land mobile, and this spectrum is far from being widely used. In fact, the initial vendors of 5 kHz equipment have all failed regarding their 220 MHz products (Uniden, Securicor, SEA, and IIMorrow) and ceased providing such equipment. Motorola has recently developed 12.5 kHz land mobile equipment, but has not yet completed testing and preparation for commercial sales. Microwave Data Systems have telemetry products in this band, but are only commencing sales. Thus, the 220-222 MHz spectrum is almost fully undeveloped (in terms of operating systems with viable equipment and customers). There is not need for bringing to the land mobile market an additional, adjacent 2 MHz of AMTS.

Instead, for reasons made clear in the Attachment, by establishing a PS-CI set aside in AMTS (and by reallocating 222-225 from Amateurs to PS and CI), shared networks can be developed between PS, CI, and private enterprise ("PE" as discussed in the Attached). This is critical for PS and CI for reasons given in the Attached, including that PS (and often CI assisting them) needs large network capacity reserves for large emergencies that is many

times the capacity they use for day to day use and “ordinary” emergencies. This would be prohibitively expensive for PS to build and maintain by itself. PE, serving the non-PS, non-CI land mobile market (which is many times the size of PS and CI combined) can provide this reserve via priority access. The case for this, with examples of major implementation in Europe, is given in the paper cited in the Attachment presented at the Harvard University Center for Governmental Studies.

Keota Oklahoma application

In the 2nd MO&O, ¶ 17, regarding Havens’s Keota, Oklahoma application, the commission denied Haven’s request (in his petition for reconsideration) to not deem this application subject to the application suspension, since (as shown in that petition), it would not have been subject to this suspension (placed on Public Notice in the suspension period) had it not been for a mistake by the Bureau in Gettysburg. In this ¶ 17, the Commission found that this request by Havens was moot since this station application was part of a waterway multi-site applications that the Commission deemed to be subject to mutually exclusive applications, and all such applications were subject to suspension.

However, after the release of the 2nd MO&O and 5th R&O, Havens filed and now has pending before the Commission a Petition for Reconsideration (filed May 8, 2002) which disputes this determination that this waterway application (and many other waterway applications of Havens) were subject to legitimate mutually exclusive applications. If Havens prevails, then the Commission’s finding of mootness has no basis, and in such case, his request to find the Keota application as not properly subject to the suspension should be responded to. Havens thus requests that the Commission set aside its mootness

finding until the final disposition of the above noted Petition for Reconsideration, and if Havens prevails in such Petition, then the Commission should grant his request relating to this Keota application.

Clarifications

Havens may submit requests for clarification of some matters decided upon in the 5th R&O under §1.2. If at that time he is so advised by the Bureau staff, he will also file such requests as Ex Parte filings in this docket.

Service

Since this filing touches upon issues regarding existing AMTS licenses that are subject to pending restricted proceedings involving Mobex and Regionet, LMSW is serving a copy of this filing upon Dennis Brown, Esq., the legal counsel of Mobex and Regionet.

[Execution on following page.]

This Petition for Reconsideration is

Respectfully submitted,

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Filed via the FCC ECSF
August 26, 2002

Attachment follows

Summary, 8-25-02

“ATLIS” White Paper
Regarding Use of 902-928 MHz
Supplemented by 217-225 MHz and 4.9 GHz
for Public Safety and Homeland Security, Critical Infrastructure, and Private Enterprise:
an Advanced-Technology Land Infrastructure and Safety Service
 (“ATLIS”)

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This is a summary of the above-captioned proposal LMSW will submit soon to the FCC, (including as Ex Parte filings in dockets regarding the subject spectrum), UTC, NTIA, Federal public safety and homeland security entities, APCO, and others.

This ATLIS proposal is designed to provide major contributions to meeting the needs of US public safety (“PS”) and critical infrastructure entities (“CI”)¹ for:

- Additional exclusive spectrum,
- Interoperability, and
- Advanced wireless networks,

and the same for business enterprises and certain Intelligent Transportation System functions served in ATLIS by for-profit private-enterprise licensees (“PE”).

The proposal is structured for efficiency and financial viability including via:

- (i) No cost of spectrum to PS and CI.
- (ii) Network sharing among multiple PS, CI, and for-profit licensees PE entities via secure VPN’s, with
- (iii) PE providing at it cost, via priority preemption, the large interoperable capacity reserve needed by PS and CI for major emergencies.²

¹ Herein “Public Safety” (“PS”) means traditional public safety as described in Section 337(f) of the Act, and “Critical Infrastructure” (“CI”) means entities described in Section 309(j)(2) of the Communications Act (the “Act”).

² Regarding the above stated needs, and the above items (ii) and (iii) as major components of a solution, see (i) Viktor Mayer-Schönberger, “Emergency Communications: The Quest for Interoperability in the United States and Europe,” John F. Kennedy School of Government, Harvard University, March 2002; available at <http://ksgnotes1.harvard.edu/BCSIA/Library.nsf/pubs/VIKtor0203>; (ii) PSWN’s *Progress Report on Public Safety Spectrum* (November 2001), page 20, Conclusions and Recommendations; (iii)

- (iv) Appropriate multiple bands: (a) each with RF propagation characteristics and spectrum amounts well suited for respective requirements, from rural coverage and basic wide-area voice and data, to urban coverage, “hot-spot” broadband, and point-to-point links, and (b) which provide the new spectrum needed for new technologies that are more spectrum efficient and for traditional and new applications at lower costs.
- (v) Simple national coordination for the PS and CI spectrum allocations.
- (vi) Other PE and certain CI support of the PS component.
- (vii) Scope and solutions worthy of major Federal and State funding of the PS component including for Homeland Security goals for capital and operating costs.
- (viii) Ability to use/ leverage advanced, cost-effective components and technology from the GSM/UMTS 900 MHz band (most used mobile spectrum in the world).

The proposed ATLIS involves, in brief:

New exclusive nationwide spectrum allocations for PS and CI:

- (i) Half of 902-928 MHz (one-quarter [6.5 MHz] each to PS and CI), with PS and CI priority access to the other half.³³ The other half licensed to for-profit entities. (See table and discussion in Exhibit 1 below.)

The 4.9 GHz Band. . . , WT Docket No 00-32, Second R&O & FNPRM, FCC 02-47 (2-27-02), ¶ 46; (iv) FCC Staff Report on NTIA’S Study of Current and Future Spectrum use by the Energy, Water, and Railroad Industries. . . (7-30-02), Conclusion section; (v) Bill Moroney (President of UTC), “Critical Infrastructure Needs Exclusive Spectrum,” (Radio Resources, June 2002); (vi) Options for Upgrading Utility Wireless Networks, (KPMG study for UTC, July 2002). Also, in planning future PS wireless, TIA-ETSI comment: “. . . Project MESA . . . reflects the vision of a mobile broadband-shared network that can be simultaneously accessed by multiple users, with multiple applications in a specified geographical area fully independent from availability of public networks and supply of electrical power.”

³³ Re 902-928 MHz, see §90.350 *et. seq.* which describes this “Location and Monitoring Service” (“LMS”) band, thus-far allocated primarily for a broad range of “Intelligent Transportation System” (“ITS”) applications, private and governmental. Re these two halves: see §90.357 (see also Table in Exhibit 1 below): the half we propose for public safety including §309j2 is the spectrum now used for “Non-multilateration” systems; the other half is what has been licensed by auction for “Multilateration” systems. LMSW (Havens and Telesaurus) hold geographic licenses for the Multilateration A-Block sub-band (the first listed sub-band in §90.357) in about 80% of the nation. One other entity, Progeny LMS LLC, holds over 90% of the rest of the Multilateration spectrum (the next two listed sub-bands).

The Non-multilateration spectrum is currently licensed only for very short-range systems along highways and railways for ID “tag” readers (passive or active transponders on vehicles) for toll collection and other ID purposes. In the vast majority of the nation, this spectrum is unused by licensed operations. Also, the 75-MHz-wide ITS 5.9 GHz band has been recently allocated by the FCC for advanced dedicated short-range communications (similar allocations in other nations for same ITS purposes), and once 5.9 GHz is licensed and developed, operations on 900 MHz

- (ii) Half of 217-225 MHz (one-quarter [2 MHz] each to PS and CI), with PS and CI priority access to the other half.⁴ The other half are licensed to for-profit entities. (Regarding availability, see discussion in Exhibit 1 below.)
- (iii) A similar arrangement for the 4.9 GHz band: PS, CI, and PE allocations, for shared networks (details to be provided soon in an Ex Parte filing in WT Docket No. 00-32 based on the ATLIS white paper).

This 200, 900, and 4900 MHz spectrum (and possibly other)⁵ would be used (probably with integration of a MSS)⁶ for multi-band shared networks: often, not always, (i) sharing in

Non-multilateration spectrum should migrate to 5.9 GHz. By use of the entire 26-MHz wide 902-928 MHz band for wide-area mobile systems, as we propose, there will always be channels available even in the localities where Non-multilateration systems are still in operation. Part 15 devices use this band, but will not pose a major problem under our plan (see next footnote).

⁴ This white paper will show that these particular 900 and 200 MHz bands, contrary to common perceptions, are not substantially used, including by Part 15 unlicensed devices in 902-928 MHz, Amateurs in 222-225 MHz, and apparent licensed operations in 217-222 MHz.

Regarding current users in 902-928 MHz under ATLIS, see Exhibit 2 below.

⁵ Possible other spectrum: (i) the VHF Public Coast (“VPC”) band: 350 to 500 kHz of paired channels in 157/162 MHz. Formerly licensed (with few exceptions) only along the US coastlines, but per FCC auctions in recent years, now licensed also for land mobile throughout the nation. I hold the VPC licenses (1 license per area) in most of the Rocky Mountain state areas, and Maritel holds virtually all of the rest of the VPC licenses for land and coastal areas. There is a 50-kHz (two 25-kHz channels, or four 12.5-kHz channels) public safety set aside in the middle of (and in addition to) this auctioned spectrum. Railroad VHF adjoins this VPC band. If Railroads became stakeholders in/ user of multi-band ATLIS network (with appropriate secured rights and control for their needs), they may, in time, be able to “trade” their substantial VHF spectrum for use rights in ATLIS networks. (ii) The 75-MHz wide 5.9 GHz band allocated for Intelligent Transportation Systems (“ITS”). Besides use for ITS-specific roadway and roadside Dedicated Short Range Communications (“DSRC”), we propose that it could also be used on a non-interfering basis under the ATLIS plan for coordinated PS, CI, and PE use, including “broadband” applications contemplated for the 4.9 GHz band and network point-to-point links. (The DSRC roadway/ roadside uses will leave most of the spectrum (on a MHz-Pop, and MHz-Land Area basis) unused. ITS functions are primarily for public safety (in the broad sense of combined §337(f) and §209(j)(2)) and the proposed ATLIS use of 5.9 GHz would be a natural extension. A description of the relationship between and need to coordinate advanced ITS and PS wireless is in the Project MESA Statement of Requirements, including in §8.6 “Transparent network and system access” in the ETSI draft V.10 at <http://www.projectmesa.org/SoR.htm> .

⁶ Mobile Satellite Service, such as Globalstar or Iridium, could be useful for coverage remote areas where terrestrial coverage would be too expensive, in some areas before terrestrial coverage is provided, as well as for redundancy and special applications (see the white paper). For this purpose, some ATLIS radios would also have MSS-capability. LMSW has met with

building and operating secure digital network infrastructure for virtual private networks, and (ii) using all or several of these bands for integrated technology and networks and/or multi-band end-user devices.

Such sharing would be among the three classes of licensees in each band, PS, CI, and PE: for-profit licensees serving businesses needing mission critical communications. Large economies of scale would be achieved yielding lower capital and operating costs, quicker and stronger development, etc.

ATLIS PE would be permitted to lease or otherwise use its spectrum and network capacity without limit to serve ATLIS PS and CI (in addition to private enterprise and individuals); ATLIS CI could lease its excess network capacity to ATLIS PS and PE, and (while less likely) ATLIS PS could do likewise to ATLIS CI and PE.

The core 902-928 MHz spectrum (which would probably carry most of the traffic) is in the GSM 900 band, which has about half of all mobile phones in the world:⁷ ATLIS would

these two MSS operators. They are seeking to provide these niche functions as part of their core business, especially for large terrestrial service with major-entity users as the proposed ATLIS. Also, via bankruptcy and financial restructuring, most of the billions of dollars in original equity and debt has been extinguished, and they are now able to price far more attractively, as has been widely reported in the trade press.

⁷ See: <http://www.gsmworld.com/news/statistics/index.shtml>, and <http://www.gsmworld.com/news/statistics/substats.shtml> :

GSM 900 (GSM using 900 MHz)⁷ has 361 million users. GSM 900 components are also in all phones of all GSM 900/1800 subscribers, another 223 million, totaling 584 million out of a total 684 million all GSM subscribers which have GSM 900 RF components. This is 85.4% of all GSM subscribers (April '02). GSM accounts for 71% of all world digital subscribers. Thus, GSM 900 MHz components are in 58% (85.4% x 68%) of all CMRS subscriber phones worldwide.⁷ This is roughly several orders-of-magnitude larger than the US market for public-safety and other mission-critical wireless.

Regarding leveraging and adapting GSM 900: One example is GSM-R for railroads (see: <http://gsm-r.uic.asso.fr/>): it uses European allocations in 876 - 915 MHz and 921 - 960 MHz, begun in late 1990's, currently being deployed in linked nationwide systems in Europe leveraging and adapting standard GSM 900 technology and components for mission-critical railroad communications. Same could be done for land-mobile mission critical communications utilizing newer "3G" on GSM 900, in fact, the GSM-R association (see <http://gsm-r.uic.asso.fr/faq.html>) writes: "if we were to start from scratch now we would embrace other possible solutions . . . software radio . . . or UMTS [commercial mobile 3G technology]. Also . . . TETRA has no allocation in the railway spectrum range in the 900MHz band."

Further, DARPA in the US has a "4G" wireless technology development project called "XG." (See: <http://www.darpa.mil/ato/programs/xg.htm>, . It is being developed for both US military and non-military wireless. Dr. Paul Kolodzy, now head of the FCC Spectrum Task Force, was the initial head of this XG project. I have spoken with Dr. Kolodzy and the current director, Preston

leverage for its use the advanced cost-effective technology and components developed for this GSM band.

In addition to above-noted cost savings by the large economies of scale involved, direct and indirect financial support would be provided to the PS licensees/ users for initial construction and ongoing operation by:

- (i) The CI licensees/ users, by providing for the shared networks use of CI antenna sites, fiber, power, right of way, maintenance, etc. on an at-cost basis or other attractive rate. (PS would also provide on the same basis use of the facilities it owns for the shared networks.)
- (ii) The PE licensees, and licenses, by providing:
 - (a) At no cost, the above-noted priority access.
 - (b) At no cost, use of PE (Multilateration) spectrum in the 902-928 MHz range where the PS spectrum is used by Non-multilateration operations (this provided also by PE to CI.
 - (c) Proceeds of PE ATLIS-spectrum auctions provided to PS towards its ATLIS capital and operating costs.⁸
- (iii) Monthly fees paid to PS towards its ATLIS costs from monthly fees charged to users of CMRS devices for the safety capabilities of mandated ATLIS RF-chips in all CMRS devices to be used for E911, basic ITS vehicular functions, and other critical safety functions (emergency broadcasts, etc). See description in Exhibit 3 below.
- (iv) Major Federal financial support (including for state and especially local PS which most needs additional funding) including for the Homeland Security and interoperability functions.

Together, the above support would greatly offset costs to PS for development and use of its component of ATLIS.

Marshall, concerning use of the 902-928 MHz band (and perhaps the other spectrum proposed for ATLIS) as a test bed for, and a major ultimate home for widespread deployment of, the DARPA XG technology.

In any case, initial and future-generation technology for the ATLIS bands would be selected by stakeholder consensus, including public safety. In my view, logically, it would commence with current-generation technology as used in P25, Tetrapol, and narrowband telemetry, and migrate to a mission-critical implementation of 3G or 4G technology developed for commercial wireless, perhaps, as noted, that derives from the DARPA XG project.

⁸ LSMS is proposing for the 4.9 GHz and 5.9 GHz that parts be auctioned to PE licensees via bids (after opening cash bids from up front payments) that constitute obligations to pay a certain percent of gross income from the wireless services using the bid-for spectrum, with such revenue stream being paid (not to US Treasury) but to the PS ATLIS coordinator for use by ATLIS PS functions (construction, operations, upgrades, etc.) This will not only help PS funding, but also motive PS and PE to cooperate, along with CI, for efficient shared networks.

In exchange for the contributions noted above and herein to PS and CI, ATLIS PE licensees would receive:

- (i) Rights to use the common network infrastructure: antenna systems, backhaul, switches and nodes, power, etc. provided by PS and CI (see above). LSM-M would secure and pay for the base-station radios and any other equipment specific to operation on its ATLIS spectrum.
- (ii) Rights to use, on an at-cost basis, PS and CI infrastructure (antenna and equipment sites, backhaul, etc.) suitable for expansion of the LMS-M networks beyond what PS and CI may be operating in a given time and area. This right would be subject to a reciprocal right of the PS and CI entities with this infrastructure to share in this LMS-M network expansion if they chose to at a later date, on the same at-cost basis.

To be most effective, there would be one nationwide authority for PS (for spectrum assignments, technology selection, system deployments, network sharing arrangements with the other participants, etc.), logically, a Federal Homeland Security function, but looking to APCO and other organizations, and one authority for critical infrastructure as UTC and other CI may decide.⁹

In addition to basic and advanced communications for PS, CI, and PE customers, other high-public-benefit functions, and PS-funding mechanisms, proposed for ATLIS are summarized in Exhibit 3 below.

This ATLIS proposal is closely aligned with the key published goals of the FCC Spectrum Task Force and statements by Chairman Powell on spectrum policy priorities, as well as the demands of current communication applications and technology— due to increasing complexity, magnitude, and cost, these increasingly call for (i) larger higher-capacity networks hence either public-access networks, or as per the ATLIS proposal, networks for non-public use shared by multiple entities in secure VPN mode, and (ii) multiple bands in frequency and amount suitable for the various coverage and applications involved.

The proposal is clearly responsive to current priorities for "Interoperability," "Homeland Security," spectrum efficiencies, spectrum availability for PS and CI, advanced technologies (which need new spectrum to deploy).

⁹ Regarding PE licensees in these bands, these would also be relatively easy to coordinate for ATLIS functions: (i) There would be one 4.9 GHz PE license, and one 5.9 GHz PE license, each awarded by auction (see footnote __ above) and conditioned upon all ATLIS requirements. (ii) There are only two LMS Multilateration licensees (LMSW [Havens and Telesaurus] and Progeny LMS LLC) that hold over 85% of all LMS spectrum (half of the 902-928 MHz), and even if Progeny does not participate, LMSW participation is sufficient. (iii) There are a handful of licensees that hold the vast majority of all geographic or multi-site licenses issues in the 217-222 MHz ranges (and few pre-auction licenses are still operational and valid). (What is not licensed yet would be set aside for PS, and the 222-225 would be reallocated from Amateur to PS use.) Accordingly, it would be relatively easy for the small number of PE licensees involved to coordinate participation in various ATLIS networks with the PS and CI ATLIS authorities.

Equipment vendors and system integrators including SAIC, Motorola, EADS-EDSN, Microwave Data Systems, and Wi-Lan have been briefed and have interest in participation in planning stages, subject to a showing of interest by the targeted stakeholders, FCC, and NTIA.

In sum, realization of the ATLIS proposal (even the core 902-928 MHz component) would substantially fulfill the critical needs for new wireless spectrum, technology, and systems for PS and CI that has been clearly identified (see, e.g., footnote __ above).

Respectfully,

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3 Exhibits follow

Exhibit 1

ATLIS Spectrum

900 MHz Core Spectrum for the proposed ATLIS service

Block*	Wide band	Narrow band	Total	<i>Under ATLIS Proposal</i>
<u>N-1</u>	902.00 - 904.00		2.00 MHz	<u>PS & CI Exclusive**</u>
M-A	904.00 - 909.75	927.75 - 928.00	6.00 MHz	PE, but <u>PS&CI access & priority</u>
<u>N-2</u>	909.75 - 919.75		10.00 MHz	<u>PS & CI Exclusive</u>
<i>N-3 & M-B (current)</i>	919.75 - 921.75	927.25 - 927.50		
<u>N-3 (per ATLIS)</u>	919.75 - 920.75		1.00 MHz	<u>PS & CI Exclusive</u>
M-B (per ATLIS)	920.75 - 921.75	927.25 - 927.50	1.25 MHz	PE, but <u>PS&CI access & priority</u>
M-C	921.75 - 927.25	927.50 - 927.75	5.75 MHz	PE, but <u>PS&CI access & priority</u>
<u>Total</u>			26.00 MHz	

Regarding the 4.9 GHz band, LMSW proposes a similar 50-50 spectrum allocation (as per above chart) between, on the one hand, PS and CI, and on the other, PE.

There would be a similar split in the 217-225 MHz band.

Despite appearances, this 217-225 MHz spectrum is largely available for the proposed ATLIS use:

- (i) 217-218 and 219-220 MHz is licensed to AMTS: per FCC filings by the subject licensees, most AMTS licenses issued to date were not placed in operation by the construction deadline, nor did they meet the coverage requirement. They are thus

* From Table: Block key: “N” means “Non-multilateration” spectrum blocks, numbered here by LMSW as “1,” “2,” and “3.” “M” means “Multilateration,” and “A,” “B,” and “C” are the block designations of the FCC. Note: N-3 and M-A are the same: this spectrum is currently a shared allocation between Non-Multilateration and Multilateration operations. §90.357 sets forth these Multilateration and Non-multilateration spectrum blocks.

** Prior to moving to the 5.9 GHz band, Non-multilateration systems (very short-range systems principally on roadway [e.g., “EZ Pass”] and other transportation systems) would be protected. The ATLIS networks would use the Multilateration spectrum to provide coverage within and near Non-multilateration systems.

terminated under §1.946 and §1.955. The FCC has planned but not yet scheduled an auction of AMTS spectrum. Rather than hold such auction, this spectrum should be licensed under the ATLIS proposal, for joint PS-CI use.

- (ii) Spectrum in 218-219 MHz has been only partially licensed, and this, only nominally developed.
- (iii) 220-222 MHz has been licensed in 5-kHz channel pairs (aggregation allowed) per auctions, but only a nominal amount (under auctioned and pre-auction licensing) is in actual operation: the 5 kHz equipment vendors, SEA and Securicor, both failed (see, e.g., granted request for extension of construction deadline of Warren C. Havens on ULS for Call Sign WHV211). It is highly doubtful that licensees would maintain, at large financial loss, operations of systems with few if any customers using equipment that is no longer being sold and supported and never had substantial success in the marketplace. In any case, these licensees are looking for a viable use of their spectrum, and the ATLIS plan presents such.

Also, there is 150 kHz in this band set aside for Public Safety.

- (iv) 222-225 is currently an Amateur band. It could be allocated exclusively for PS and CI use under the ATLIS proposal.

Exhibit 2

Other Users in 902-928 MHz under ATLIS

1. Low-power unlicensed Part 15 devices: see §90.361: Part 15 devices used in wireless systems (such as for wireless meter reading) for critical infrastructure would be switched to Part 90 status, and would operate under the CI spectrum allocation in the ATLIS 902-928 MHz band (tuned off of the PS allocation), and other Part 15 devices, such as indoor consumer cordless phones, and LANS (most of which are now on the 2.4 and 5 GHz bands using 802.11 variations) would be phased out: no further sales after a cut-off date.

It is a waste of ideal mobile spectrum to use it for Part 15 devices, especially when they have orders of magnitude more spectrum and capability via 2.4 GHz, 5 GHz UNII, unlicensed PCS, and Ultra Wide Band which promises to exceed the traditional unlicensed equipment in capability and cost. In any case, the importance of the ATLIS uses warrant these modifications of Part 15 use.

2. Federal and ISM use: see §90.353(a): Federal entities, via NTIA, have priority rights in 902-928 MHz for radiolocation but have used the band only lightly (Navy ship radar, some wind-profile radiolocation, and occasional other use). Under my proposal, Federal public safety use along with other public safety would be wide-scale, and for such ends, NTIA would coordinate and contain any other Federal use as needed so they would not interfere (appropriate NTIA-FCC rule changes would implement this).

ISM devices use 902-928 MHz, but they do not receive and do not intentionally or substantially transmit, thus pose little problem.

3. Amateurs' use: see §90.361: Amateurs also may use this band on a secondary non-interfering basis to LMS (and Federal) operations but only slightly use it. A reasonable amount of use may be helpful in civil defense, especially if coordinated with the Amateur community (e.g., if they had mobile radios capable of basic interoperability with the ATLIS radios upon trigger by public safety). If Amateur use becomes a problem, the licensed ATLIS users would have good cause for grant of remedial restrictions or phase out by the FCC.

Exhibit 3

Additional ATLIS Functions and PS Funding Mechanisms

Note: in items 1, 2, and 3 below, the ATLIS-enabled CMRS devices or the ATLIS radios would have integrated location capability (network and/or GPS) (a core capability in all 3G wireless and beyond):

ATLIS-enabled CMRS for E911, basic ITS functions, etc.

1. ATLIS networks, once sufficiently built out (equal or better coverage than CMRS), could replace and improve on CMRS for E911. CMRS devices would all have FCC-mandated ATLIS RF chips for E911 calls, and by such they could be connected not only to PSAP's but via PSAP's to responders in the field (PS, and if needed, CI) heading to or at the incident location. Also, unlike CMRS-based E911, such ATLIS E911 would allow for group calls to the victims: often, responders will include a number of entities, such as police and medical, police and fire and medical, etc. This arrangement would save CMRS money (E911 is costing CMRS billions of dollars to launch, and eventually more to maintain) and lessen fears and insurance costs regarding liability: This savings would offset cost of the mandated ATLIS RF chip and (see text above). (CMRS could, of course, pass on the net costs, if any, to their subscribers.)
2. The same ATLIS RF chips would be DOT-mandated for installed or docked radios in all roadway vehicles (in most cases included in Telematics devices providing for communications, location, information, computing, and entertainment) to allow for "electronic license plates" and other basic safety functions, e.g.:
 - a. Authorization, by "smart" highway corridors, to qualified vehicles to use HOV and LEC highway lanes/ time slots (others get tickets automatically), or variable charges of highway lanes and time slots depending on the level of its noxious emissions, level of passengers per vehicle class.
 - b. "Push" and "pull" notification of dangerous or congested road conditions ahead (and disabling entertainment and [other] communications where warranted).
 - c. PS one-way broadcasts of voice and data messages in certain emergencies.
 - d. Other functions under the general capability provided whereby vehicles on the road can interact with PS and the (increasingly "intelligent") highway systems, saving tens of thousands of life per year and (per ITS America) and billions of dollars in lost workforce productivity, mitigating environmental impact, etc.

In short, ITS wireless should not be left to a patchwork of CMRS and small private systems.¹⁰ ATLIS can make ITS wireless effective as a principal goal: PE ATLIS can carry most of the ITS traffic. This was clearly contemplated by the FCC when allocating the Location and Monitoring Service in the 902-928 MHz band.¹¹ See also the TIA-ETSI Project MESA's description of the need to coordinate advanced ITS and PS wireless is in the Project MESA Statement of Requirements, including in §8.6 "Transparent network and system access" in the ETSI draft V.10, at <http://www.projectmesa.org/SoR.htm>.

Regarding items 1 and 2 above, the owners of the ATLIS-enabled devices would be charged a monthly fee (collected by the CMRS provider) for the Federally mandated capabilities and use of all Federally mandated functions. (If, e.g., \$1/month/device, and assuming 120 million devices, and 10¢/device collection and handling fee to CMRS, then the net proceeds would be \$1.3 billion/year.) If PS ATLIS network capability is solely used for these functions, then all the net proceeds would go to PS; if PE capability is involved, then it would obtain a prorata amount of the proceeds. In addition, CMRS users electing to use the ATLIS capability for certain ITS-functions or other functions provided by PE ATLIS would pay use fees to PE (per collection arrangement with CMRS or direct billing by ATLIS PE).

Greater Back-up Capacity. Via the arrangements described above (whereby all CMRS phones would be capable of operating on the ATLIS network, at least for certain basic voice and data functions), in a large-scale emergency, if there were not sufficient ATLIS radios in the affected area,^{12 13} then PS, and the various other persons involved in emergency

¹⁰ See: Paul Najarian, "Is a Wireless Architecture the Future of ITS?" in *ITS View* (journal of ITS America), July 2001 Issue, available at below Web link.

<http://www.itsa.org/ITSView.nsf/ff53871fee52042a85256a6e00096b5b/73f38dc16296b185256a6f000b816c?OpenDocument>. Mr. Najarian, at the time of writing the article, was the ITS America director of Telecommunications and also directed its ITS Public Safety and Telematics. This article discussed the need for a dedicated communications architecture and infrastructure, including its wireless infrastructure components, for Intelligent Transportation System applications, discussed how this need is not being met by existing plans and available networks and technologies, and proposes steps toward meeting this need. ATLIS would in large part provide for these needs, in conjunction with the new 5.9 GHz DSRC services.

¹¹ See FCC releases in PR Docket No. 93-61. Available in the LSM auction "Bidder Package" at: <http://wireless.fcc.gov/auctions/21/releases.html#bip>.

¹² In such case, ATLIS radios could be borrowed from other areas, but this could take time, and would have limits that may be exceeded in some cases.

¹³ Per the priority-access arrangement described in the text above (whereby PS and CI would have priority access to all PE ATLIS network capacity in defined emergencies), the more PE network capacity is built out, the more back-up *network* capacity is available for PS. But to use this PE network capacity, PS needs reserve radios. Since they will probably only keep modest reserve radios for day-to-day and "routine" emergencies, the issue is: where to get a larger pool of reserve radios in especially large-scale emergencies. The above is a solution.

responses (professional and volunteer) working under PS, could use the ATLIS-enabled CMRS phones (again, while these would not have all of the functions of an ATLIS radio, they would be serviceable in such cases), and by such, keep communications interoperable on the ATLIS network.

3. Asset tracking for Homeland Security. Tracking assets, including large shipping containers and their contents, besides having major commercial value, presents one of the major unsolved problem areas for Homeland Security due to the potential for using them as means to deliver contraband and for terrorism. This was discussed at the annual meeting of the Intelligent Transportation Society at the session on 4-30-02 "Tracking and Tracing Assets, Cargo, and Operators." Currently, there are inadequate means at US borders and internally to check container contents, assure that locks and seals are not broken after inspection on route, etc. Once ATLIS is sufficiently built out, it can provide the needed functions, probably in conjunction with an integrated Mobile Satellite Service (see footnote ___ in text above).
4. Wireless links for remote environmental monitoring: of water, air, ozone, etc., for point source pollution and overall ecosystem health; for certain wildlife monitoring; and for detection of intentional or accidental pollution via chemical, biological, or nuclear releases. For this, foundation and corporate vendor co-funding grants would be sought, in conjunction with uses by research institutions and other educational functions.
5. Nextel swap of 800 and 900 MHz for public safety 700 MHz (when the TV's are cleared off), thus consolidating public safety at 800 to 900 MHz (including 902-928 MHz). This could save billions of dollars in potential relocation costs to PS and CI under currently discussed plans for mitigation of interference in 800 MHz. Also, 900 MHz is used in Europe now for mission-critical communications: the GSM-R band (in 876 - 915 MHz and 921 - 960 MHz) (GSM 900 itself is 880-915 MHz and 925-960 MHz), and as 3G CMRS develops worldwide on new UMTS spectrum, it is possible that in time some current GSM 900 spectrum will be available for PS and CI, thereby increasing the market for products developed on the ATLIS 900 MHz component spectrum. In this regard, a goal of the TIA-ETSI Project MESA for advanced PS wireless is uniform spectrum in the US and Europe. See